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10/692,233	10/23/2003	Mark Stewart	920476-94987	8380

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EXAMINER	
MERED, HABTE	

ART UNIT	PAPER NUMBER
2474	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Patent-ch@btlaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/692,233	STEWART ET AL.	
	Examiner	Art Unit	
	HABTE MERED	2474	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/26/09*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-17,33,34,36,37,39,43,44,46 and 47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9, 11-17, 33-34, 36-37, 39, 43-44, 46-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 8/26/09 has been entered and fully considered.

2. Claims 1-9, 11-17, 33-34, 36-37, 39, 43-44, 46-47 are pending. The independent claims amended are 1, 33, 34, 36, and 37 and these claims are amended to make the subject matter claimed statutory under U.S.C. 101.

Response to Arguments

3. The rejections of Claims 1-9, 11-17 and 46-47 under 35 U.S.C. 101 are now withdrawn in view of Applicant's amendment to claim 1.

4. Applicant's arguments filed on 8/26/09 have been fully considered but they are not persuasive.

Applicant in the Remarks on page 11 argues with respect to claim 1 that the primary reference, Dropmann'934, does not teach a processing stage as claimed in claim 1. Further, Applicant argues that Examiner does not positively indicate whether Dropmann'934 teaches the processor stage as claimed but introduces a secondary reference Koistinen'114 to teach the processing stage as claimed. Applicant proceeds to declare that Koistinen'114 processing stage simply does not show any one of the elements such as data compression or echo cancellation when processing voice data.

Examiner respectfully disagrees. Examiner has indicated that the primary reference, Dropmann'934, does not expressively teach a processing stage as

claimed. It does however teach a processing stage which is an ATM switch receiving the extracted pure voice data. ATM switch processing voice data without echo cancelling and compression capability is unthinkable as the quality of the voice call will be terrible. But Examiner introduced Koistinen'114 to teach a processing stage as claimed. Examiner reminds Applicant that the independent claims only require showing one of a group comprising a processing stage that has echo cancelling capability or data compression capability or DTMF capability or G.711 codec capability. Examiner has shown exactly where Koistinen'114 teaches these capabilities in more than one instance as shown in the rejections. Applicant has not challenged these specific citing from Koistinen'114 disclosure and it appears Applicant is simply saying Koistinen'114 does not teach it without giving a specific reason why Examiner's citing from Koistinen'114 does not teach the specific capabilities of the processing stage.

Namely Koistinen'114 in Column 9, Lines 51-53 teach echo cancellation, data compression in Column 3, Line 11, and G.711 log-law coding to the voice data in Column 3, Lines 15-20 fully addressing the limitation in question.

Hence Examiner is maintaining the rejections of all pending claims under U.S.C 103(a).

5. Examiner also wants to re-emphasize that the secondary reference is powerful enough to teach the amended limitation and the claimed invention and is much powerful

than the primary reference. A close review of the newly added limitation reveals it is related to elements common to any voice processing stage and cannot be distinguishing over the cited prior arts or any other relevant prior art in telephony. Finally both cited prior arts clearly show separating control info and voice info and processing each entity separately cannot be novel.

Claim Rejections - 35 USC § 101

6. **Claims 36 and 37** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 36 in line 1 recites a computer program product. The support for computer program product in the specification as indicated on page 5 indicates that computer program product is strictly a software program. Software program is not statutory on its own under 35 U.S.C. 101.

Claim 37 in line 1 recites a computer program product. The support for computer program product in the specification as indicated on page 5 indicates that computer program product is strictly a software program. Software program is not statutory on its own under 35 U.S.C. 101.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1-9, 11-17, 33-34, 36-37, 39, 43-44, and 46-47** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dropmann et al (US Pub. No. 2003/0193934) in view of Koistinen (US 7, 257, 114 B1).

Regarding **claim 1**, Dropmann'934 discloses a method of operating an ingress entity of a packet-based network **(Fig. 2, element 5 ingress side is input to a switch that is packet based because it handles packets)**, comprising:

the ingress entity **(Fig. 2, element 5)** receiving a stream of voice data **(Figure 2, channel 4 provides a stream of voice data – see paragraph 10)**;

the processor **(switching device receiving output of module 10 see paragraph 10)** passing the voice data through a processing stage **(Figure 2, output of element 10 is strictly voice data and sent for processing as ATM or IP packet -see last sentence of paragraph 10)**;

the ingress entity **(Fig. 2, element 5)** sending processed voice data across the network **(See Figure 2, output of element 10 sent across channel 6 of Figure 2)**;

a detection unit (**device 7 of Figure 2)**detecting whether the received stream of voice data contains tandem free operation (TFO) information **(the conversion device 7 of Figure 2 does the detection – see paragraph 10)** and, if TFO information is present, removing TFO information from the stream of voice data **(i.e. in-band TFO is isolated from the voice data stream channel 4 of Figure 2 and stored in element 8 for further processing in the inter-working units – see paragraphs 9 and 10)** before passing the voice data through the processing stage **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**, sending the TFO information across the network **(see last sentence of paragraph 5)** without passing it through the processing stage**(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**;

further including controlling the step of removing TFO information from the stream of voice data to ensure that the TFO information does not leak through to voice data **(Dropmann'934 indicates in paragraph 9 that the TFO info (i.e. signaling info extracted from the TRAU from the incoming stream) can be sent separately out of band while voice data is sent separately packaged as ATM-AAL2 or IP packets and ensures no signaling data is leaked into the voice stream)**.

Dropmann'934 fails to expressly disclose the sending of processed voice data and TFO info across a packet network and that the processing stage including one of the group comprising applying data compression to the voice data, applying echo cancellation to the voice data, applying G.711 log-law coding to the voice data, applying silence suppression to the voice data and applying DTMF digit relay to the voice data. Dropmann'934 discloses a packet based network because the MSC 5 of Figure 2 has

the capability to prepare IP packets and ATM packets and can interface with a packet network or can be part of a packet network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Koistinen'114. In particular, Koistinen'114 discloses the sending of processed voice data **(compressed audio data as well as TFO info is sent across packet network 803)** across a packet network **(See Column 9, Lines 55-67 where clearly packet network receives audio data and TFO info separately)** and that the processing stage **(Column 4, Lines 40-42 shows voice processing stage means – See Fig. 7 and Column 9, Lines 6-25)** including one of the group comprising applying data compression to the voice data **(Column 3, Line 11)**, applying echo cancellation to the voice data **(Column 9, Lines 51-53)**, applying G.711 log-law coding to the voice data **(Column 3, Lines 15-20)**, applying silence suppression to the voice data and applying DTMF digit relay to the voice data **(It is clear that Koistinen'114 has a processing stage means as described in Column 4, Lines 40-42 and Column 9, Lines 6-25 and echo cancellation for instance is applied without interfering with the stage processing the TFO signaling as illustrated in Column 9, Lines 51-53)**.

In view of the above, having the method of Dropmann'934 and then given the well established teaching of Koistinen'114, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Dropmann'934 as taught by Koistinen'114, the motivation for sending voice data over a packet switched network is to use Voice Over IP (VOIP) which is cheaper than PSTN

services and Koistinen'114 makes the same point in Column 2, Lines 53-63 by indicating that use of a packet network between cellular networks is a natural choice.

Regarding **claim 2**, the combination of Dropmann'934 and Koistinen'114 discloses a method further comprising inserting the TFO information into packets for sending across the packet network **(See Koistinen'114's Figures 3 and 7. Also Dropmann'934 shows Figure 2 outputs of element 8 are TFO info and are processed by the inter-working unit using Iu-UP protocol based packets like UDP and RTP as detailed in paragraphs 5 and 10)**.

Regarding **claim 3**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the TFO information is carried in the same packets as the processed voice data **(See Koistinen'114's Figures 3 and 7).**

Regarding **claim 4**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the TFO information is carried in separate packets from the processed voice data. **(See in Dropmann'934's Figure 2 Inter-working module packaging the TFO info in separate packets from voice. See Koistinen'114's Figures 3 and 7).**

Regarding **claim 5**, the combination of Dropmann'934 and Koistinen'114 discloses a method according wherein the TFO information comprises TFO (IS) messages and TFO frames of coded voice data and wherein a common packet format is used to carry both types of TFO information. **(See also Dropmann'934's Figures 2, and paragraphs 5, 9, and 10 in that Dropmann'934 discloses all types of TFO messages and frames are processed as TFO info including in band (TFO IS) and TFO frames of coded voice data. See also Koistinen'114's Figures 3 and 7 and Column 9, Lines 5-30 and Column 7, Lines 5-20)**

Regarding **claim 6**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the structure of the payload differs according to whether the packet contains TFO (IS) messages or TFO frames **(See Koistinen'114's Figures 3 and 7 and Column 9 Lines 5-30 and Column 7, Lines 5-20 where different payload structure is shown depending if TFO IS or TFO frame is contained.)**

Regarding **claim 7**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the packet comprises an indication of the quantity of TFO data carried within the packet **(See Koistinen'114's Figures 3 and 7 and Column 9 Lines 5-30 and Column 7, Lines 5-20).**

Regarding **claim 8**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the packets carrying TFO information further comprise

information about the time alignment of the TFO information carried in the packet **(See Koistinen'114's Figures 3 and 7 as they show TCP packets for the encapsulation and TCP packets have time stamp).**

Regarding **claim 9**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the processed voice data is carried across the packet network by a sequence packets which have include timestamp information and the packets carrying the TFO information share the same timestamp information **(See Koistinen'114's Figures 3 and 7 as they show TCP packets for the encapsulation and TCP packets have time stamp and the time stamp is shared across network)**.

Regarding **claim 11**, the combination of Dropmann'934 and Koistinen'114 discloses a method further comprising receiving information about the format of packets to be used to carry the TFO information during a call. **(See Koistinen'114 Column 4, Line 67)**

Regarding **claim 12**, the combination of Dropmann'934 and Koistinen'114 discloses a method further comprising receiving information about the capabilities of an egress entity of the packet network **(See Koistinen'114 Column 5, Lines 55-67).**

Regarding **claim 13**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the information about the capabilities of an egress entity is

received during call establishment **(See Koistinen'114 Column 5, Lines 55-67 and Column 6, Lines 5-35 receiving signaling info on egress capabilities during call establishment).**

Regarding **claim 14,** the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the information comprises information about the buffering capabilities of the egress entity. **(See Koistinen'114 Column 5, Lines 55-67 and Column 6, Lines 5-35 receiving signaling info on egress capabilities during call establishment).**

Regarding **claim 15**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the information comprises information about the capabilities of the egress entity to buffer TFO frames in parallel with speech data **(See Koistinen'114 Column 5, Lines 55-67 and Column 6, Lines 5-35 receiving signaling info on egress capabilities buffering TFO info during call establishment).**

Regarding **claim 16**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the packets carrying TFO information are sent at regular intervals. **(This is a characteristic of voice streams and Koistinen'114 supports voice stream as shown in column 11, Lines 4-10)**

Regarding **claim 17**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein the TFO information comprises TFO frames of coded voice data **(See Koistinen'114 Figure 3 and Column 7, Lines 5-25 and Column 11, Lines 4-10)**; and the method further comprises sending the TFO frames, in unprocessed form, in a channel which occupies less than 64kbit/s. **(See Koistinen'114's Figures 1 and 2 and Column 2, Lines 34-40 and Column 7, Lines 10-15)**.

Regarding **claim 33**, Dropmann'934 discloses an apparatus **(i.e. Figure 2, element 7)** for use at the ingress entity of a packet-based network **(Fig. 2, element 5 ingress side is input to a switch that is packet based because it handles packets)**, comprising:

an input **(Fig. 2, element 5 ingress side is an input)** for receiving a stream of voice data **(Figure 2, channel 4 provides a stream of voice data – see paragraph 10)**;

a processor **(switching device receiving output of module 10 see paragraph 10)** for passing the voice data through a processing stage **(Figure 2, output of element 10 is strictly voice data and sent for processing as ATM or IP packet -see last sentence of paragraph 10)**;

an output **(Fig. 2 element 6)** for sending processed voice data across the network **(See Figure 2, output of element 10 sent across channel 6 of Figure 2)**;

a detection unit **(device 7 of Figure 2)** for detecting whether the received stream of voice data contains tandem free operation (TFO) information **(the conversion**

device 7 of Figure 2 does the detection – see paragraph 10) and, if TFO information is present, removing TFO information from the stream of voice data **(i.e. in-band TFO is isolated from the voice data stream channel 4 of Figure 2 and stored in element 8 for further processing in the inter-working units – see paragraphs 9 and 10)** before passing the voice data through the processing stage **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**, sending the TFO information across the network **(see last sentence of paragraph 5)** without passing it through the processing stage**(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**;

a controller **(Fig. 2 modules 8-10)** for controlling removal TFO information from the stream of voice data to ensure that the TFO information does not leak through to voice data **(Dropmann'934 indicates in paragraph 9 that the TFO info (i.e. signaling info extracted from the TRAU from the incoming stream) can be sent separately out of band while voice data is sent separately packaged as ATM-AAL2 or IP packets and ensures no signaling data is leaked into the voice stream)**.

Dropmann'934 fails to expressly disclose the sending of processed voice data and TFO info across a packet network and that the processing stage including one of the group comprising applying data compression to the voice data, applying echo cancellation to the voice data, applying G.711 log-law coding to the voice data, applying silence suppression to the voice data and applying DTMF digit relay to the voice data. Dropmann'934 discloses a packet based network because the MSC 5 of Figure 2 has

the capability to prepare IP packets and ATM packets and can interface with a packet network or can be part of a packet network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Koistinen'114. In particular, Koistinen'114 discloses the sending of processed voice data **(compressed audio data as well as TFO info is sent across packet network 803)** across a packet network **(See Column 9, Lines 55-67 where clearly packet network receives audio data and TFO info separately)** and that the processing stage **(Column 4, Lines 40-42 shows voice processing stage means – See Fig. 7 and Column 9, Lines 6-25)** including one of the group comprising applying data compression to the voice data **(Column 3, Line 11)**, applying echo cancellation to the voice data **(Column 9, Lines 51-53)**, applying G.711 log-law coding to the voice data **(Column 3, Lines 15-20)**, applying silence suppression to the voice data and applying DTMF digit relay to the voice data **(It is clear that Koistinen'114 has a processing stage means as described in Column 4, Lines 40-42 and Column 9, Lines 6-25 and echo cancellation for instance is applied without interfering with the stage processing the TFO signaling as illustrated in Column 9, Lines 51-53)**.

In view of the above, having the apparatus of Dropmann'934 and then given the well established teaching of Koistinen'114, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Dropmann'934 as taught by Koistinen'114, the motivation for sending voice data over a packet switched network is to use Voice Over IP (VOIP) which is cheaper than PSTN

services and Koistinen'114 makes the same point in Column 2, Lines 53-63 by indicating that use of a packet network between cellular networks is a natural choice.

Regarding **claim 34**, Dropmann'934 discloses an apparatus **(i.e. Figure 2, element 7)** for use at the ingress entity of a packet-based network **(Fig. 2, element 5 ingress side is input to a switch that is packet based because it handles packets)**, comprising:

an input **(Fig. 2, element 5 ingress side is an input)** for receiving a stream of voice data which contains Tandem Free Operation (TFO) frames of coded voice data **(Figure 2, channel 4 provides a stream of voice data containing Tandem Free Operation (TFO) frames of coded voice data see paragraph 10)**;

a processor **(switching device receiving output of module 10 see paragraph 10)** for passing the voice data through a processing stage **(Figure 2, output of element 10 is strictly voice data and sent for processing as ATM or IP packet -see last sentence of paragraph 10)**;

a first output **(Fig. 2 element 6)** for sending processed voice data across the network **(See Figure 2, output of element 10 sent across channel 6 of Figure 2)**;

a detection unit **(device 7 of Figure 2)** for detecting the TFO frames **(the conversion device 7 of Figure 2 does the detection – see paragraph 10)** and, if TFO frames are present, removing TFO frames from the stream of voice data **(i.e. in-band TFO is isolated from the voice data stream channel 4 of Figure 2 and stored in element 8 for further processing in the inter-working units – see paragraphs 9**

and 10) before passing the voice data through the processing stage **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**,

a second output **(MSC signaling unit of Fig. 2 –BICC Interworking see paragraphs 10)**, for sending **(i.e. output module 8 of Figure 2)** the TFO information across the network **(see last sentence of paragraph 5)** without passing it through the processing stage (i.e. unprocessed) via a channel **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)** which has a rate of less than 64 Kbits/sec **(see paragraph 4 and claim 1)**;

a controller **(Fig. 2 modules 8-10)** for controlling removal of TFO information from the stream of voice data to ensure that the TFO information does not leak through to voice data **(Dropmann'934 indicates in paragraph 9 that the TFO info (i.e. signaling info extracted from the TRAU from the incoming stream) can be sent separately out of band while voice data is sent separately packaged as ATM-AAL2 or IP packets and ensures no signaling data is leaked into the voice stream)**.

Dropmann'934 fails to expressly disclose the sending of processed voice data and TFO info across a packet network and that the processing stage including one of the group comprising applying data compression to the voice data, applying echo cancellation to the voice data, applying G.711 log-law coding to the voice data, applying silence suppression to the voice data and applying DTMF digit relay to the voice data. Dropmann'934 discloses a packet based network because the MSC 5 of Figure 2 has the capability to prepare IP packets and ATM packets and can interface with a packet network or can be part of a packet network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Koistinen'114. In particular, Koistinen'114 discloses the sending of processed voice data **(compressed audio data as well as TFO info is sent across packet network 803)** across a packet network **(See Column 9, Lines 55-67 where clearly packet network receives audio data and TFO info separately)** and that the processing stage **(Column 4, Lines 40-42 shows voice processing stage means – See Fig. 7 and Column 9, Lines 6-25)** including one of the group comprising applying data compression to the voice data **(Column 3, Line 11)**, applying echo cancellation to the voice data **(Column 9, Lines 51-53)**, applying G.711 log-law coding to the voice data **(Column 3, Lines 15-20)**, applying silence suppression to the voice data and applying DTMF digit relay to the voice data **(It is clear that Koistinen'114 has a processing stage means as described in Column 4, Lines 40-42 and Column 9, Lines 6-25 and echo cancellation for instance is applied without interfering with**

In view of the above, having the apparatus of Dropmann'934 and then given the well established teaching of Koistinen'114, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Dropmann'934 as taught by Koistinen'114, the motivation for sending voice data over a packet switched network is to use Voice Over IP (VOIP) which is cheaper than PSTN services and Koistinen'114 makes the same point in Column 2, Lines 53-63 by indicating that use of a packet network between cellular networks is a natural choice.

Regarding **claim 36**, Dropmann'934 discloses a computer program product for implementing a method of operating an ingress entity of a packet-based network **(Fig. 2, element 5 ingress side is input to a switch that is packet based because it handles packets)**, the computer program product comprising computer executable instructions embodied on a machine readable storage medium, the computer executable instructions causing the ingress entity to perform the steps of:

receiving a stream of voice data **(Figure 2, channel 4 provides a stream of voice data – see paragraph 10)**;

passing the voice data through a processing stage **(Figure 2, output of element 10 is strictly voice data and sent for processing as ATM or IP packet -see last sentence of paragraph 10)**;

sending processed voice data across the network **(See Figure 2, output of element 10 sent across channel 6 of Figure 2)**;

detecting whether the received stream of voice data contains tandem free operation (TFO) information **(the conversion device 7 of Figure 2 does the detection – see paragraph 10)** and, if TFO information is present, removing TFO information from the stream of voice data **(i.e. in-band TFO is isolated from the voice data stream channel 4 of Figure 2 and stored in element 8 for further processing in the inter-working units – see paragraphs 9 and 10)** before passing the voice data through the processing stage **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**, sending the TFO information across the network **(see last sentence of**

paragraph 5) without passing it through the processing stage**(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**;

further including controlling the step of removing TFO information from the stream of voice data to ensure that the TFO information does not leak through to voice data **(Dropmann'934 indicates in paragraph 9 that the TFO info (i.e. signaling info extracted from the TRAU from the incoming stream) can be sent separately out of band while voice data is sent separately packaged as ATM-AAL2 or IP packets and ensures no signaling data is leaked into the voice stream)**.

Dropmann'934 fails to expressly disclose the sending of processed voice data and TFO info across a packet network and that the processing stage including one of the group comprising applying data compression to the voice data, applying echo cancellation to the voice data, applying G.711 log-law coding to the voice data, applying silence suppression to the voice data and applying DTMF digit relay to the voice data. Dropmann'934 discloses a packet based network because the MSC 5 of Figure 2 has the capability to prepare IP packets and ATM packets and can interface with a packet network or can be part of a packet network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Koistinen'114. In particular, Koistinen'114 discloses the sending of processed voice data **(compressed audio data as well as TFO info is sent across packet network 803)** across a packet network **(See Column 9, Lines 55-67 where clearly packet network receives audio data and TFO info separately)** and that the processing stage **(Column 4, Lines 40-42 shows voice processing stage means –**

See Fig. 7 and Column 9, Lines 6-25) including one of the group comprising applying data compression to the voice data **(Column 3, Line 11)**, applying echo cancellation to the voice data **(Column 9, Lines 51-53)**, applying G.711 log-law coding to the voice data **(Column 3, Lines 15-20)**, applying silence suppression to the voice data and applying DTMF digit relay to the voice data **(It is clear that Koistinen'114 has a processing stage means as described in Column 4, Lines 40-42 and Column 9, Lines 6-25 and echo cancellation for instance is applied without interfering with the stage processing the TFO signaling as illustrated in Column 9, Lines 51-53)**.

In view of the above, having the computer program product of Dropmann'934 and then given the well established teaching of Koistinen'114, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the computer program product of Dropmann'934 as taught by Koistinen'114, the motivation for sending voice data over a packet switched network is to use Voice Over IP (VOIP) which is cheaper than PSTN services and Koistinen'114 makes the same point in Column 2, Lines 53-63 by indicating that use of a packet network between cellular networks is a natural choice.

Regarding **claim 37**, Dropmann'934 discloses a computer program product for implementing a method of operating an ingress entity of a packet network **(Fig. 2, element 5 ingress side is input to a switch that is packet based because it handles packets)**, the computer program product comprising computer executable

instructions embodied on a machine readable storage medium carrying the computer executable instructions causing the ingress entity to perform the steps of:

receiving a stream of voice data which contains Tandem Free Operation (TFO) frames of coded voice data **(Figure 2, channel 4 provides a stream of voice data containing Tandem Free Operation (TFO) frames of coded voice data see paragraph 10)**;

passing the voice data through a processing stage **(Figure 2, output of element 10 is strictly voice data and sent for processing as ATM or IP packet -see last sentence of paragraph 10)**;

sending processed voice data across the network **(See Figure 2, output of element 10 sent across channel 6 of Figure 2)**;

detecting the TFO frames **(the conversion device 7 of Figure 2 does the detection – see paragraph 10)** and, if TFO frames are present, removing TFO frames from the stream of voice data **(i.e. in-band TFO is isolated from the voice data stream channel 4 of Figure 2 and stored in element 8 for further processing in the inter-working units – see paragraphs 9 and 10)** before passing the voice data through the processing stage **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**, sending the TFO frames across the network in an unprocessed form via a channel **(see last sentence of paragraph 5)** without passing it through the processing stag e**(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**;

controlling removal of TFO information from the stream of voice data to ensure that the TFO information does not leak through to voice data **(Dropmann'934 indicates in paragraph 9 that the TFO info (i.e. signaling info extracted from the TRAU from the incoming stream) can be sent separately out of band while voice data is sent separately packaged as ATM-AAL2 or IP packets and ensures no signaling data is leaked into the voice stream)**.

Dropmann'934 fails to expressly disclose the sending of processed voice data and TFO info across a packet network and that the processing stage including one of the group comprising applying data compression to the voice data, applying echo cancellation to the voice data, applying G.711 log-law coding to the voice data, applying silence suppression to the voice data and applying DTMF digit relay to the voice data. Dropmann'934 discloses a packet based network because the MSC 5 of Figure 2 has the capability to prepare IP packets and ATM packets and can interface with a packet network or can be part of a packet network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Koistinen'114. In particular, Koistinen'114 discloses the sending of processed voice data **(compressed audio data as well as TFO info is sent across packet network 803)** across a packet network **(See Column 9, Lines 55-67 where clearly packet network receives audio data and TFO info separately)** and that the processing stage **(Column 4, Lines 40-42 shows voice processing stage means – See Fig. 7 and Column 9, Lines 6-25)** including one of the group comprising applying data compression to the voice data **(Column 3, Line 11)**, applying echo cancellation to

the voice data **(Column 9, Lines 51-53)**, applying G.711 log-law coding to the voice data **(Column 3, Lines 15-20)**, applying silence suppression to the voice data and applying DTMF digit relay to the voice data **(It is clear that Koistinen'114 has a processing stage means as described in Column 4, Lines 40-42 and Column 9, Lines 6-25 and echo cancellation for instance is applied without interfering with the stage processing the TFO signaling as illustrated in Column 9, Lines 51-53)**.

In view of the above, having the computer program product of Dropmann'934 and then given the well established teaching of Koistinen'114, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the computer program product of Dropmann'934 as taught by Koistinen'114, the motivation for sending voice data over a packet switched network is to use Voice Over IP (VOIP) which is cheaper than PSTN services and Koistinen'114 makes the same point in Column 2, Lines 53-63 by indicating that use of a packet network between cellular networks is a natural choice.

Regarding **claim 39**, Dropmann'934 discloses a telecommunication system comprising the ingress entity **(See Figure 2 element 5 and Koistinen'114 also discloses such an entity in Figure 8).**

Regarding **claim 43**, Dropmann'934 discloses an apparatus **(i.e. Figure 2, element 7)** for use at the ingress entity of a packet-based network **(Fig. 2, element 5**

ingress side is input to a switch that is packet based because it handles packets), comprising:

an input responsive to a stream of voice data **(Figure 2, channel 4 provides a stream of voice data – see paragraph 10)**;

a processing stage which process the voice data **(Figure 2, output of element 10 is strictly voice data and sent for processing as ATM or IP packet -see last sentence of paragraph 10)**;

an output from which processed voice data across the network **(See Figure 2, output of element 10 sent across channel 6 of Figure 2)**;

a detection unit which is arranged to detect whether the received stream of voice data contains tandem free operation (TFO) information **(the conversion device 7 of Figure 2 does the detection – see paragraph 10)** and wherein the detection unit is further arranged, if TFO information is present, removing TFO information from the stream of voice data **(i.e. in-band TFO is isolated from the voice data stream channel 4 of Figure 2 and stored in element 8 for further processing in the inter-working units – see paragraphs 9 and 10)** before passing the voice data through the processing stage **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**, sending the TFO information across the network **(see last sentence of paragraph 5)** without passing it through the processing stage**(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**;

removal TFO information from the stream of voice data to ensure that the TFO information does not leak through to voice data **(Dropmann'934 indicates in**

paragraph 9 that the TFO info (i.e. signaling info extracted from the TRAU from the incoming stream) can be sent separately out of band while voice data is sent separately packaged as ATM-AAL2 or IP packets and ensures no signaling data is leaked into the voice stream).

Dropmann'934 fails to expressly disclose the sending of processed voice data and TFO info across a packet network and that the processing stage including one of the group comprising applying data compression to the voice data, applying echo cancellation to the voice data, applying G.711 log-law coding to the voice data, applying silence suppression to the voice data and applying DTMF digit relay to the voice data. Dropmann'934 discloses a packet based network because the MSC 5 of Figure 2 has the capability to prepare IP packets and ATM packets and can interface with a packet network or can be part of a packet network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Koistinen'114. In particular, Koistinen'114 discloses the sending of processed voice data **(compressed audio data as well as TFO info is sent across packet network 803)** across a packet network **(See Column 9, Lines 55-67 where clearly packet network receives audio data and TFO info separately)** and that the processing stage **(Column 4, Lines 40-42 shows voice processing stage means – See Fig. 7 and Column 9, Lines 6-25)** including one of the group comprising applying data compression to the voice data **(Column 3, Line 11)**, applying echo cancellation to the voice data **(Column 9, Lines 51-53)**, applying G.711 log-law coding to the voice data **(Column 3, Lines 15-20)**, applying silence suppression to the voice data and

applying DTMF digit relay to the voice data **(It is clear that Koistinen'114 has a processing stage means as described in Column 4, Lines 40-42 and Column 9, Lines 6-25 and echo cancellation for instance is applied without interfering with the stage processing the TFO signaling as illustrated in Column 9, Lines 51-53)**.

In view of the above, having the apparatus of Dropmann'934 and then given the well established teaching of Koistinen'114, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Dropmann'934 as taught by Koistinen'114, the motivation for sending voice data over a packet switched network is to use Voice Over IP (VOIP) which is cheaper than PSTN services and Koistinen'114 makes the same point in Column 2, Lines 53-63 by indicating that use of a packet network between cellular networks is a natural choice.

Regarding **claim 44**, Dropmann'934 discloses an apparatus **(i.e. Figure 2, element 7)** for use at the ingress entity of a packet-based network **(Fig. 2, element 5 ingress side is input to a switch that is packet based because it handles packets)**, comprising:

an input responsive to a stream of voice data which contains tandem free operation (TFO) frames of coded voice data **(Figure 2, channel 4 provides a stream of voice data containing Tandem Free Operation (TFO) frames of coded voice data see paragraph 10)**;

a processing stage which process the voice data **(Figure 2, output of element 10 is strictly voice data and sent for processing as ATM or IP packet -see last sentence of paragraph 10)**;

a detection unit which is arranged to detect whether the received stream of voice data contains tandem free operation (TFO) information **(the conversion device 7 of Figure 2 does the detection – see paragraph 10)** and wherein the detection unit is further arranged, if TFO information is present, removing TFO information from the stream of voice data **(i.e. in-band TFO is isolated from the voice data stream channel 4 of Figure 2 and stored in element 8 for further processing in the inter-working units – see paragraphs 9 and 10)** before passing the voice data through the processing stage **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**, a transmission unit **(Figure 2, element 6)** for sending the TFO information across the network **(see last sentence of paragraph 5)** without passing it through the processing stage **(i.e. output of Fig.2 element 10 leading to ATM AAL2/IP processor)**;

removal TFO information from the stream of voice data to ensure that the TFO information does not leak through to voice data **(Dropmann'934 indicates in paragraph 9 that the TFO info (i.e. signaling info extracted from the TRAU from the incoming stream) can be sent separately out of band while voice data is sent separately packaged as ATM-AAL2 or IP packets and ensures no signaling data is leaked into the voice stream)**.

Dropmann'934 fails to expressly disclose the sending of processed voice data and TFO info across a packet network and that the processing stage including one of the group comprising applying data compression to the voice data, applying echo cancellation to the voice data, applying G.711 log-law coding to the voice data, applying

silence suppression to the voice data and applying DTMF digit relay to the voice data. Dropmann'934 discloses a packet based network because the MSC 5 of Figure 2 has the capability to prepare IP packets and ATM packets and can interface with a packet network or can be part of a packet network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Koistinen'114. In particular, Koistinen'114 discloses the sending of processed voice data **(compressed audio data as well as TFO info is sent across packet network 803)** across a packet network **(See Column 9, Lines 55-67 where clearly packet network receives audio data and TFO info separately)** and that the processing stage **(Column 4, Lines 40-42 shows voice processing stage means – See Fig. 7 and Column 9, Lines 6-25)** including one of the group comprising applying data compression to the voice data **(Column 3, Line 11)**, applying echo cancellation to the voice data **(Column 9, Lines 51-53)**, applying G.711 log-law coding to the voice data **(Column 3, Lines 15-20)**, applying silence suppression to the voice data and applying DTMF digit relay to the voice data **(It is clear that Koistinen'114 has a processing stage means as described in Column 4, Lines 40-42 and Column 9, Lines 6-25 and echo cancellation for instance is applied without interfering with the stage processing the TFO signaling as illustrated in Column 9, Lines 51-53)**.

In view of the above, having the apparatus of Dropmann'934 and then given the well established teaching of Koistinen'114, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the apparatus of Dropmann'934 as taught by Koistinen'114, the motivation for sending voice data over a

packet switched network is to use Voice Over IP (VOIP) which is cheaper than PSTN services and Koistinen'114 makes the same point in Column 2, Lines 53-63 by indicating that use of a packet network between cellular networks is a natural choice.

Regarding **claim 46**, the combination of Dropmann'934 and Koistinen'114 discloses a method further comprising the step of recognizing the synchronization pattern of the TFO information and, wherein, the step of controlling removing TFO information from the stream of voice data to ensure that the TFO information does not leak through to voice data **(Dropmann'934 in Figure 2 and paragraphs 5, 9, and 10 clearly teaches distinguishing TFO info and signaling from the incoming data stream 4 and extracting the voice data and the TFO info separately in an orderly manner and Koistinen'114 also teaches separating the TFO and voice data from incoming voice stream as taught in Figure 3 and Column 4, Lines 10-30, Column 5, Line 25, and Column 7, Lines 10-15)**

comprises monitoring the frame alignment of the TFO information and performing re-synchronization when the alignment of the TFO information slips **(Koistinen'114 discusses in Column 8, Lines 33-40 the possibility of carrying synchronization bits and their purpose to guarantee TFO frame alignment)**.

Regarding **claim 47**, the combination of Dropmann'934 and Koistinen'114 discloses a method wherein controlling the step of removing TFO information from the

stream of voice data to ensure that the TFO information does not leak through to voice data comprises the step of squelching TFO information in the stream of voice data. **(Dropmann'934 shows in Figure 2 that the incoming voice data stream 4 that the TFO info is squelched or suppressed from the voice data stream by extracting it and inserting in the inter-networking module of Figure 2. Koistinen'114 teaches the same thing in Figure 3 and Column 4, Lines 10-30, Column 5, Line 25, and Column 7, Lines 10-15)**

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HABTE MERED whose telephone number is (571)272-

6046. The examiner can normally be reached on Monday to Friday 10:30AM to 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Habte Mered/
Examiner, Art Unit 2474